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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/522,340	08/12/2005	Jean-Marc Suau	264369US0PCT	6461
22850	7590	03/23/2007		
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER BERNSHTEYN, MICHAEL	
			ART UNIT	PAPER NUMBER
			1713	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/23/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/23/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/522,340	<b>Applicant(s)</b> SUAU ET AL.	
	<b>Examiner</b> Michael Bernshteyn	<b>Art Unit</b> 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☐ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 12/14/2006
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

### **DETAILED ACTION**

1. This Office Action follows a response filed on December 20, 2006. Claims 9-24 have been cancelled; no claims have been amended or added.
2. The indicated allowability of claims 1-8 is withdrawn in view of the newly discovered reference(s) to Egraz et al. (U. S. Patent 6,063,884). Rejections based on the newly cited reference(s) follow.
3. Claims 1-8 are pending.

### ***Claim Rejections - 35 USC § 103***

4. The text of this section of Title 35 U.S.C. not included in this action can be found in a prior Office Action.
5. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over J. Chiefair et al. (WO 99/31144) in view of Egraz et al. (U. S. Patent 6,063,884).

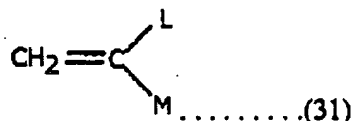
With regard to the limitations of instant claims 1-4 and 6-8, Chiefair discloses a free radical polymerization process for synthesizing polymers. The process utilizes sulfur based chain transfer agents and is widely compatible over a range of monomers and reaction conditions. The process produces novel polymers having low polydispersity and predictable specific polymer architecture and molecular weight. The polymers are suitable for use as binders in automobile OEM and refinish coating (abstract).

The process is in batch or semi-batch mode and comprises two stages, the first of which is synthesizing "in situ" an hydrosoluble transfer agent used in the second

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stage of polymerization (page 7, lines 23-25; page 26, lines 20-22; examples, page 34-64).

Chiefair discloses that a monomer mix suitable for use may include at least one vinyl monomer of the formula (31) below:



where L is selected from the group consisting of hydrogen, halogen, and substituted or unsubstituted C<sub>1</sub>-C<sub>4</sub> alkyl substituents being independently selected from the group consisting of OH, OR", CO<sub>2</sub>H, O<sub>2</sub>CR", CO<sub>2</sub>R" and a combination thereof;

where M is selected from the group consisting of hydrogen, R", CO<sub>2</sub>R", COR", CN, CONH<sub>2</sub>, CONHR", CONR"<sub>2</sub>, O<sub>2</sub>CR", OR", and halogen.

R" is selected from the group consisting of substituted or unsubstituted alkyl, alkenyl, aryl, heterocyclyl, aralkyl, alkaryl, and a combination thereof (page 13, lines 5-8, page 19, lines 18-28).

Depending upon the type of polymer desired, the monomer mix may also include the following monomers: maleic anhydride, N-alkylmaleimide, N-arylmaleimide, dialkyl fumarate, cyclopolymerizable or ring opening monomer, or a combination thereof. The monomer mix may also include macromonomers, which are compounds of the formula (31) where L or M is a polymer chain.

The monomers or comonomers of the formula (31) generally include one or more of acrylate and methacrylate esters, **acrylic and methacrylic acids**, styrene, acrylamide, methacrylamide, acrylonitrile, methacrylonitrile, vinyl esters and mixtures of

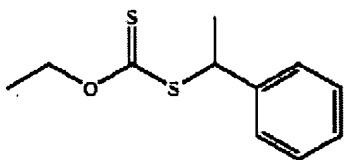
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these monomers, and mixtures of these monomers with other monomers (page 19, line 35 through page 20, line 3).

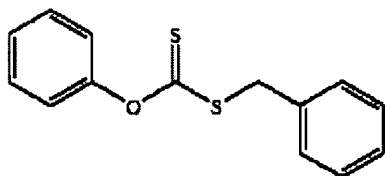
Chiefair discloses that one of the significant advantages of the process is that the low polydispersity of the polymer in the range of 1.05 to 1.3 can be maintained even at high monomer conversions in the range from 10% to 100% (page 24, lines 3-6).

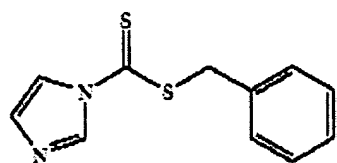
Chiefair discloses a lot of chain transfer agents, which are substantially identical to the claimed invention. Some of them were exemplified by the Applicant, such as compound C (example 1, test 2, pages 15-16, [0185]); compound F (example 1, test 4, page 16, [0193]); compounds M, N and P (example 1, test 7, [0206]).

Compound C

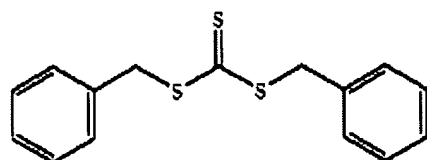


Compound F

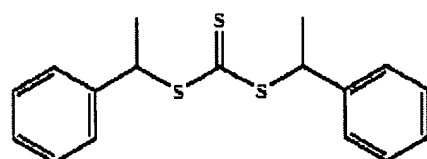




Compound M



Compound N



Compound P

Chiefair discloses that the amount of chain transfer agents, index polydispersity and molecular weight of the obtained polymers are within the claimed ranges in the most examples (examples 15-52, pages 45-62).

The reactive media of the first stage of synthesis of the transfer agent include water (Procedure 1, page 35, line 32; example 2, page 36, lines 13-14, etc.).

Chiefair does not disclose that the reactive media for homopolymerization is an aqueous solution.

Egraz discloses that homopolymers and/or copolymers are manufactured by polymerizing ethylenically monounsaturated monomer(s) in an **aqueous solution** (abstract). The copolymerizable monomers are selected from the group consisting of (meth)acrylic acid, itaconic acid, crotonic acid, fumaric acid, maleic acid anhydride, isocrotonic acid, etc. (col. 3, line 55 through col. 4, line 4).

Both references are analogous art because they are from the same field of endeavor concerning new process for homopolymerization of acrylic acid and its salts in the presence of a chain transfer agent.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate water as reactive media of the second stage of polymerization as taught by Egraz in Chiefair's free radical polymerization process because Egraz successfully used an aqueous solution in the process of polymerizing ethylenically monounsaturated monomer(s), which enables the production of dissolved polymers which are colorless, odorless, and which are accompanied by very low (minimum) amounts of residual monomers and undesirable organic by-product (US'884, col. 2, lines 37-41), and thus to arrive at the subject matter of instant claim 1 and dependable claims 2-4 and 6-8.

With regard to the limitations of instant claim 5, Chiefair discloses that the molar ratio of transfer agent to monomer and mass ratio of transfer agent to monomer are within the claimed ranges (Examples 15-52, pages 45-64).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Bernshteyn whose telephone number is 571-272-2411. The examiner can normally be reached on M-F 8-5:30.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Bernshteyn  
Patent Examiner  
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03/14/2007

  
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